



Nature Teaching Equipment

A Digest of a paper by Edith Curry on "Providing a Classroom Environment for Better Learning Opportunities in the Natural Sciences," given at the December 1958 meetings of the ANSS.

The best "Nature Room" is the out-of-doors. We should use it as much as possible. Here nature study, the study of everything in the environment, can best be accomplished. But since it is not practical to do all our study of natural sciences in the field, *classrooms* need to be equipped for such study.

If we believe that all children should have an integrated series of science experiences, from first through at least the ninth grade, and that nature study should receive a balanced share of the time allotted, then I think we can do this best in the *regular classroom* so the children will not miss out on the emergence of a butterfly, the hatching of eggs, etc.

In providing a classroom environment for better learning opportunities in the natural sciences, the following factors must be considered: (1) the Teacher; (2) Pupils; (3) The Room; (4) Books; (5) Special Instructional Supplies and Equipment; and (6) The School Administration. There is no point in talking about equipment without first considering the interrelatedness of all these factors.

It takes more than physical equipment to create an improved classroom environment. It must come about because the teacher in that classroom believes that reading about natural science is not enough, that the study of natural sciences helps children understand and appreciate their natural environment; believes that the most effective way to arrive at such understandings and appreciations is through direct observation and investigation. She must believe so deeply and intensely that a child must investigate and experiment to receive maximum benefits that somehow, in spite of handicaps and overwhelming odds, such opportunities are provided.

Teachers and administrators need help. Their own backgrounds in natural sciences need strengthening. In service workshops, attendance at Audubon Camps, Conservation Camps, Nature Camps, field study courses, some summer sessions will help elementary teachers and principals gain confidence and the realization that at the elementary level one does not need to be a specialist, that one starts simply and with common subjects and common experiences. Additional study in the sciences, especially field courses, will help the junior and senior high school teacher.

The second factor in our list is pupils. The number of pupils becomes a critical factor in a nature study program based on first hand observations and investigation. Many of the teachers interviewed, while preparing this paper, said that what they needed most if they were to do better teaching in the field of nature study was a class size of 30 (maximum) and more time.

Pupils will help the teacher create the room environment. With their help the collection of rocks, shells, seeds, and insects grows, and so does the picture file. Bottles, jars, cans, twine, wire scraps, fabric scraps, boxes, all the various no-cost materials which have so many uses, are added. However, the children's contributions should only supplement those provided by the school.

The classroom itself may be a critical factor. Room facilities may make the difference between a good, indifferent, or no program in nature study. The room should be large, have good light, storage

REMEMBER -

December 26th is the day you will arrive in Chicago to begin the 1959 Annual Meeting of the American Nature Study Society, held in conjunction with the A.A.A.S. of which it is a part. Please circle this date on your calendar now and start making plans to *come*.

Better Teacher Preparation Urged

Verne Rockcastle in a paper on *Better Teacher Preparation in Nature Study*,* urges we begin the preparation of teachers by insisting on an adequate preparation in science at the high school level and in some special enrollment requirements for those training for nature study teaching at the college level. He says that if we accept mediocrity in incoming freshmen we must expect mediocrity in the graduates and in the public school classrooms in which they will teach.

A nature study teacher's training needs to cut across many lines of natural science and include much more than just life sciences. Nature study is learning to live in harmony with natural environment and to understand it. Part of this environment is non-living. Climate, soil, air, water, rocks, the sun are important parts of environment. Nature study teachers should have a good background for presenting such material and relating it to living plants and animals.

Mr. Rockcastle points out that his ideas are not new and that many nature study leaders feel as he does, yet nothing much seems to be done to improve matters. He concludes with this anecdote about an agriculturist who asked a farmer if he could show him a few techniques to help improve his farming. But the farmer said, "Nope."

When the Agriculturist asked, "Don't you want to know how to farm better?" the farmer replied that he already knew how to farm better than he was doing.

"If we already know how to teach better than we do," says Mr. Rockcastle, "then let's get on with it."

* Brief digest of a paper given at the December, 1958 meetings of ANSS.

space, electrical outlets, and running water if possible.

Reference books, manuals, texts on methods and materials should be in each room. Books for pupils should include a

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AMERICAN NATURE STUDY SOCIETY NEWS LETTER

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ANSS State Membership Chairmen

S. Glidden Baldwin, First Vice-president and National Membership Chairman for ANSS, wishes to thank all of you for the fine work you have been doing in bringing in new members, and says he hopes you will try harder than ever between now and December to bring in still more members and make this the *biggest year ever* for our Society. **ALSO**—he hopes all of you will make a special effort to come to the Chicago meetings where he promises all of you a *free meal* at your special get-together. **AND**—again he offers to pay the hotel bill of the chairman who gets the most members this year, 1959.

Connecticut Center Has New Director

The Audubon Center of Connecticut has a new director, Mr. Duryea Morton. Mr. Morton succeeds Charles Mohr, now director of a sanctuary in Pennsylvania operated by the Philadelphia Academy of Sciences. It would be hard to find a person better suited to operate the Audubon Center of Connecticut, a 450 acre wildlife sanctuary with nature trails, wildflower gardens, established children's programs and Audubon Camp for adults. Mr. Morton, an able young man, is no stranger to the National Audubon Society, nor to the Connecticut Center. He has served on the staffs of both the Audubon Camp of Maine and the Audubon Camp of Connecticut and is well acquainted with the activities and philosophy of the National Audubon Society which operates the Center. In addition, Mr. Morton is an experienced teacher of children and a fine wildlife photographer. The Audubon Center of Connecticut is in good hands.

Charles Mohr Directs New Sanctuary

Swiss Pines at Malvern, Pennsylvania, about five miles west of Valley Forge, is to become a wildlife Sanctuary and natural science laboratory. It will be operated by the Philadelphia Academy of sciences as a field for research in plant and animal life, local geology and climate. There will be nature trails for the public and nature programs for nearby schools. It is expected, that for the next two years attention will be largely devoted to development of the area.

Charles Mohr, formerly director of the Audubon Center of Connecticut and before that for eight years director of Public Instruction at the Philadelphia Academy of Sciences, has been appointed full time Curator of Swiss Pines. He is already on the job laying out trails through the 160 acre sanctuary which occupies three broad ridges and is bordered on one side by Pickering Creek. The area appears well suited to the program planned.

As a long time member of ANSS, which he has served in many capacities, we wish Charles Mohr all success in this new enterprise.

Mr. Herman Schneider, author of many good children's books on natural science says that we do too much *pointing out* instead of *looking for*, that field trips are often just guided tours with children as tourists instead of as explorers.

Every child needs a place of his own in which to keep things that interest him—a box, a shelf that can be particularly his own. Children like to collect rocks, nuts, seeds, feathers and keep them around while they get acquainted with them.

Let's Do Something About This

And what will we leave behind us when we are long dead? Temples? Amphora? Sunken Treasure?

Or mountains of twisted, rusted steel, canyons of plastic containers, and a million miles of shores garlanded, not with lovely wrack of sea, but with the cans, and bottles, and light-bulbs, and boxes of a people who conserved their convenience at the expense of their heritage, and whose ephemeral prosperity was built on waste.

—From "More in Anger," by Marya Mannes, published by J. B. Lippincott.

More Outdoor Recreation Resources

A new organization, Outdoor Recreation Resources Review Commission, was appointed by Congress a year ago. It has for its chairman, Mr. Nelson Rockefeller, and for its executive director, Mr. Francis W. Sargent. It has for its purpose:

1. To preserve, develop, and secure accessibility to all American people of present and future generations such quality and quantity of outdoor recreation resources as will be necessary and desirable for individual enjoyment, and to assure the spiritual, cultural and physical benefits such outdoor recreation provides.

2. To inventory and evaluate the outdoor recreation resources and opportunities of the nation.

3. To make comprehensive information and recommendation leading to these goals available to the President, the Congress and the individual States and Territories.

Eight projects are presently under consideration:

1. Analysis of outdoor recreation in present day American life;

2. Projection of society as it may be in 1976 and 2000;

3. Summary of existing data on present and potential outdoor recreation areas;

4. Study of the use of private lands for public recreation, including policy and management aspects;

5. Consideration of legal aspects of public use of private lands for recreation;

6. State-by-state estimates of expected use of each major type of outdoor recreation area for 1976 and 2000;

7. Special study of urban and suburban open space as affecting demand for more distant park facilities;

8. Detailed study of the cost and ways and means of financing proposed programs.

Teaching Tips for Nature Study

Nature Riddles and Answers

What animal moves with ease through fields and woods, even climbs trees sometimes, yet has no legs, or even any feet? — *Ekins*.

What common animal of moist woodlands travels around on only one foot? — *Lians*.

What common mammal has fingers longer than its legs? — *Tab*

A Sealed World

Take a glass gallon jar with screw-on cover. Place an inch and a half of soil from a pond on the bottom. Select 3 or 4 healthy pond plants and plant them in the soil. Cover soil with a thin coat of sand. Fill jar with pond water to the point where the jar starts to narrow (try to get water from a green colored pond where the plankton should be plentiful). Stand jar in good light but not direct sunlight. After water clears, add one small fish (about one inch long, not counting its tail fin) and one big pond snail or two small ones. Screw cover on tight and seal with wax or tape. Your sealed world is complete and if it was set up with care, should maintain itself for several months, perhaps a year. The fish, snails, and plankton animals obtain oxygen from the plants. The plants get carbon dioxide for their food making from fish, snails and plankton animals. The plankton animals eat the plankton plants, the fish eat the plankton (which should be plentiful enough to multiply slightly faster than the fish can consume it). The snails are the scavengers and serve to keep the sealed world clean. Here, before the children's eyes is a fascinating lesson in interdependence between soil, water, plants and animals; a lesson on the balance of nature; a good lesson in ecology. A sealed world is quite easy to set up, costs nothing and becomes a focal point for much interesting discussion.

Observations in the Field

Observations easily made on short field trips in school yards and vacant lots:

Spiders — Pick up a black and yellow garden spider. Hold it gently with underside up, touch her spinnets with moistened finger and draw out a thread—OR—let her crawl across your hand and drop off on her life line, then crawl back up it—OR—still holding her gently, see the pattern of her eight eyes, look closely at her fangs. A small reading glass will help. Encourage children to watch a spider build its web, snare an insect, wrap it in silk, suck it and drop it.

Snail — The underside of a land snail shell is often transparent, especially when

moistened. Look for movement inside the shell, the regular pulsating of the heart. Watch the breathing pore open and close. When the snail is climbing against the glass in a terrarium, use a reading glass to watch the mouth.

Puffball — Watch one "smoke" and try to imagine how small just one spore might be and remember this speck is alive and capable of producing a new plant.

Decayed Wood — A dead tree is said to have 1000's of undertakers and many varieties. Consider what some of these might be. Collect some dry decayed wood, so soft it will crumble in your hand, and weigh half a cupful carefully. (Make a balance out of a wooden coat hanger, two cottage cheese cartons and some string and use dry sand for weights.) Add water to fill carton and let stand over night. Pour off excess water (all that will drip out but do not press or squeeze the wood pulp) and weigh again. Compare the two masses of sand. Wood pulp will usually soak up water to about four times its dry weight. Discuss how the floor of an old forest could take in rain water, retain it, and feed it slowly and continuously to streams.

Ant Conversation — Find two ants head-on with waving antennae. Turn to the story about ants in Anna B. Comstock's *Handbook of Nature Study* and discover the amazing amount of information two ants can glean while waving their antennae — look under stones and boards for ant colonies at work.

Crickets — Find a big black field cricket, look for its ear, a white spot near an "elbow" in its front leg. Put several crickets, males and female (with long stick-like ovipositor projecting from rear) in a cricket cage. You can make one by putting a large cellophane window and a large screen window in a small ice cream carton. Put some sod on the bottom with grass cut short and keep this moist. Feed crickets bits of wool and graham cracker. When the male crickets chirp, compute the temperature; count the number of cricket chirps in 15 seconds and add 40 for the temperature in degrees Fahrenheit.

Cut-out Letters

Cut-out letters are now available for instant use. They are made from durable colored cardboards, suitable for signs, posters, displays, stimulating interest in spelling, phonetics and arithmetic. They come in red, black, green, yellow, blue and white:

2" capital letters in set of 180 with numbers and signs, \$1.00;

1 3/8" manuscript style in set of 240 letters, \$1.00;

4" capital letters in set of 150 letters with numbers and signs, \$2.00; (one color and one size per set).

For easy mounting, you may order reusable 2-sided plastic adhesive, \$1.00 per pack. For free samples and further information, write Mutual Aids, Dept. R-1236, 1946 Hillhurst Avenue, Los Angeles 27, California.

Conservation

This is the title of a new and excellent publication of Camp Fire Girls, Inc. prepared by Nan Harman of the Camp Fire Girl staff with advice and assistance from Dr. Paul B. Sears, Chairman of the Yale Conservation Program; Dr. Richard Weaver and Miss Jane Brown of the Department of Conservation, University of Michigan. The publication is a most useful one with many interesting and practical projects and activities, and well illustrated. It also contains a special separate on Soil and Water Conservation Activities, prepared for Camp Fire Girl Leaders by the Soil Conservation Service. This publication, \$1.50 per copy, may be ordered from Supply Division, Camp Fire Girls, Inc., 450 Avenue of the Americas, New York 11, New York, (Catalogue No. D-249).

Night Field Trips for Schools

Mrs. Robert E. Rulison of Lake Forest, Illinois, reports being out with classes every night from April 28 through the end of May. She and the children watched the woodcock "dance" in the spring, watched the stars come out, listened to the late songs and calls of the birds. They had very interesting and enjoyable experiences. Mrs. Rulison was available to the schools by invitation. Teachers requested her services and stated special interests of their class groups, such as stars, birds, flowers. Trips took place from early evening until dark. The local school board plans to continue and extend Mrs. Rulison's field trip services this school year.

High School Science Films

A free catalog of over 800 high school science films is now available, FREE, from the Audio-Visual Center, Indiana University, Bloomington, Indiana. Included in the listing are 15 films produced at Indiana University and six produced for National Educational Television. All of the films are 16mm and can be rented from Indiana University by responsible individuals and groups. The film descriptions have been arranged according to the three broad science areas — biology, chemistry, and physics — and

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Two Wild Areas In National Forests

ANSS members will be interested in the proposal of the U. S. Forest Service to establish the Great Gulf Wild Area, a 5,400 acre glacial valley on the White Mountain National Forest, one of the distinctive features of the Presidential Range. The gulf is from 1100 to 1600 feet deep and extends eastward from Mt. Washington some three and a half miles as a narrow, steep-sided gulf before broadening to more open terrain. It contains a number of remarkable cascades, and the views from the walls and from points on the floor are among the best in New England. The area still remains a wild region and while it is reasonably accessible to hikers and back-packers, the rugged character of the slopes and surrounding peaks which shut in the valley lend a feeling of remoteness.

Once the classification of this wild area has been approved, a few simple Adirondack shelters and fireplaces in forested areas will be constructed, also a few closed-in refuge huts above timber line. The present foot trails will be continued, but no tractor, jeep trails or roads will be permitted.

Another wild area, being favorably considered by the U. S. Forest Service, for classification as a wild area, is some 6,050 acres surrounding Wheeler Peak on the Carson National Forest near Taos, New Mexico. The location is high, rugged, very scenic with the principal peaks averaging 13,000 feet in elevation. In general the area is sub-alpine in character and the cover varies from sub-alpine turf at high elevations downward through Engelman spruce forest and mixtures of Engelman, corkbark fir and bristle cone pine.

The purpose is to preserve primitive conditions, the values of expansive solitude and unspoiled natural environment. No roads, no motor travel, resorts, cabins, or summer homes will be permitted. Timber in the area is of little commercial value but economically it is very valuable as water shed cover.

High School Science Films

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within these broad categories further sub-divided according to such subject-matter units as adaptation (plant and animal), atomic energy, and electricity and magnetism. A fourth section lists related films. Although the films have been recommended by teacher committees for high school use, many are suitable for junior high school and college science classes.

Program Material For Adult Groups

Adult clubs looking for program material, in which everyone participates and stressing concepts of importance with respect to conservation, will be interested in activities of a group of 35 in Illinois. The group divided into 10 committees, each to present to the others one way in which man has acted to change the face of the earth: to change the air, climate, rivers, land forms, soil, plants, birds, grasses, forests. "We had fun," reports Mrs. James Blair, 602 Division St, Barrington, Illinois. This fall the same group plans to work out by committees, the effect of land forms on man, land forms such as mountains, plains, desert, rain forests, cities, Arctic. Some of the group will be ready to discuss various phases of man's culture with respect to the affect to certain land forms and food, design, music, art, philosophy.

These programs were inspired by Mrs. May Watts of the Morton Arboretum, Lisle, Illinois. Members of the group have all taken courses at the Arboretum. In developing the program good use was made of the book, "Man's Role in Changing the Face of the Earth."

Mrs. Blair reports that another good program was one on weeds. Dozens of samples were presented to smell, taste and examine. Also they had a green salad of cattail, artichoke and dock for refreshment and a mint and catnip tea for a drink.

Nature Teaching Equipment

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variety of field books for identification, references on care and feeding of animals which might be brought in, books to help interpret, stress meanings, suggest activities. In junior and senior high schools, it is desirable to have magazines such as "Nature," "Natural History," "Popular Science," and others.

Varous kinds of equipment and supplies should be ready, well organized and conveniently stored in the classroom (nets, cages, etc.) Materials needed for many experiments and activities need not be expensive, nor difficult to obtain. Some can be secured without cost, some can be made, others purchased.

In concluding, Miss Curry states that the recommended minimum equipment for the creation of an environment in which better learning opportunities for an active nature study or natural science program are provided consists of:

1. A teacher dedicated to the nature study philosophy,
2. A maximum of 30 pupils,
3. Adequate room facilities,
4. Appropriate and sufficient texts and references *at hand*,
5. Necessary supplies and equipment for a program of active investigation,
6. Helpful, sympathetic and understanding leadership from administrators.

Application for Annual Membership

Membership in the American Nature Study Society includes a membership card, a quarterly NEWSLETTER and the magazines you select. Please note you can get your membership for less than \$2.00, even free, by selecting the proper group.

GROUP COST

		MEMBERSHIP COST
1	\$2.00 Membership only (NEWSLETTER)	\$2.00
2	3.00 Membership with Cornell Rural Leaflet (4 issues)	2.00
3	4.50 Membership with Canadian Audubon Magazine (5 issues)	1.00
4	5.50 Membership with Canadian Audubon & Cornell Leaflet	1.50
5	5.50 Membership with Nature Magazine (10 issues)	.50
6	6.50 Membership with Nature Magazine & Cornell Leaflet	1.00
7	8.00 Membership with Nature Magazine & Canadian Audubon	free
8	8.50 Membership with Nature Magazine & Canadian Audubon & Cornell Leaflet	free

F For Family Membership, add \$1.00 to cost of group selected.

Circle group desired, send application with name and address and check to

Dr. Howard E. Weaver,

202 Men's Old Gym, University of Illinois, Urbana, Illinois

AMERICAN NATURE STUDY SOCIETY
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